

Application No.: 10/609265
Amendment dated: December 16, 2004
Reply to Office action of September 22, 2004

REMARKS/ARGUMENTS

Paragraph 5 of the specification is amended to supply a missing word in the third sentence, and to make two other minor corrections.

Claim 1 has been amended to address the rejection on Lull et al. As originally presented, claim 1 did not positively recite a flow rate sensor, and did not positively say that the common controller was responsive to a signal provided by the sensor. It merely recited a mathematical relationship between a set signal and a flow rate, without structure sufficient to distinguish the invention from the apparatus of Lull et al. This deficiency in claim 1 has been remedied by a positive recitation of:

"a sensor arranged to measure the flow rate of gas in said fully opened secondary flow path,"

a recitation that the sensor is:

"connected to said common controller," and provides "to said common controller a feedback signal representing the flow rate of gas in said fully opened secondary flow path", and

a recitation that:

the common controller is "responsive to said feedback signal" and delivers, "to the mass flow controller in each other one of said secondary flow paths, a set signal for controlling the flow therein" and

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a recitation that:

the set signal is "dependent on said feedback signal"
and "obtained by multiplying the measured flow rate in
said fully opened secondary flow path by the
predetermined ratio. . ."

In FIG. 3, Lull shows a division system in which each of a plurality of secondary flow paths leading to a process chamber is provided with a mass flow controller, and the mass flow controllers are all responsive to set signals derived from a process controller. The mass flow controllers have flow sensors. (See Lull, column 6, line 19.) Moreover, the flows of process fluid "may have a predetermined ratio relative to the total amount of the process fluid received at the fluid inlet." (Lull, column 5, lines 47-51). However, in the apparatus shown in Lull's FIG. 3, no signal representative of the flow rate of gas in any of the several secondary flow paths is provided to a common controller, nor is there a common controller that is responsive to such a signal. Lull's pressure transducer 321 responds to pressure in the fluid inlet 155, which is a common flow path upstream of the division of flow. As noted above, each of the individual mass flow controllers has its own flow sensor, but the flow sensor output in each controller appears to be internal to that controller. There is no cross-connection between controllers, nor is there a feedback path to the process controller or to any other common controller.

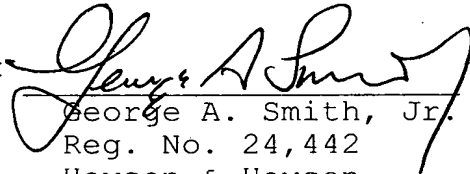
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Lull's FIG. 7 shows an alternative system, in which signals from flow meters in divided flow paths are manipulated and fed back to a proportional diverter valve. This system controls flow ratios using feedback signals, but utilizes a diverter valve instead of plural mass flow controllers. Because the system uses a diverter valve, there cannot be anything in this system corresponding to a mass flow controller in a secondary flow path that is fully open.

For the reasons set forth above, the applicant respectfully submits that the claims, as amended, define subject matter that is neither anticipated, nor shown to have been obvious, by Lull, and requests favorable reconsideration and allowance of this application.

Respectfully submitted,
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